(84) Designated Contracting States:
AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU
MC NL PT SE
Designated Extension States:
AL LT LV MK RO SI

(71) Applicant: ALCATEL
75008 Paris (FR)

(72) Inventors:
• Nguyen, Tu-Anh
1070 Brussels (BE)

• van Doorselaer, Bart
9090 Melle (BE)

(74) Representative: Narmon, Gisèle
Industrial Property Department,
Alcatel Bell N.V.,
Francis Wellesplein 1
2018 Antwerpen (BE)

(54) **Method for setting up a session between a host of a data network and a mobile terminal of a mobile network and device for performing such method**

(57) A method for setting up a session between a host (H) of a data network (IP) and a mobile terminal (T) of a mobile network (W) via a session gateway device (GW1) between said data network and said mobile network includes a first step of setting up a first session between said host (H) and said session gateway device (GW1) within said data network (IP), followed by a second step of setting up a second session between said session gateway device (GW1) and said mobile terminal (T), whereby said first session includes a first subsession set up between said host (H) and a mobility server device (MSD) included in said data network (IP), and a second subsession set up between said mobility server device (MSD) and said session gateway device (GW1). A mobility server device for performing this method is described as well.
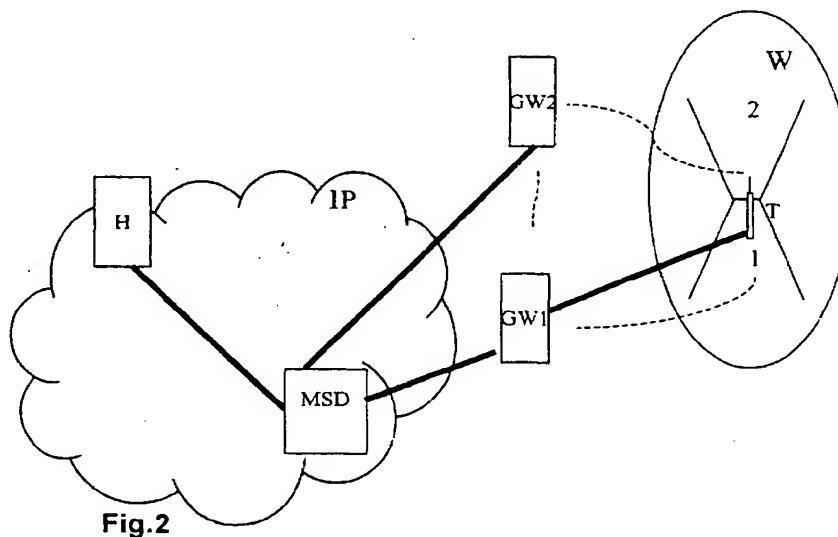
Fig.2

EP 1 150 521 A1

ditional session to the MSD, as is further depicted in Fig. 2 by the thick solid line between GW2 and MSD. At this moment both session gateway devices are further intensively communicating since one of them still has to take care of the mobile connection to the terminal T. In Fig. 2 the situation is depicted that GW1 still takes care of it. As soon as the terminal T is however mainly located within the second area, the second session gateway completely takes over, and the first session gateway terminates the two sessions : one with the MSD and one with T, as is shown in Fig. 3. At this moment the data packets are exchanged between H and T via MSD and GW2.

[0027] In another variant of the method, realized by another variant of the MSD, the latter is taking care of the handover. In this situation both GW1 and GW2 remain sending packets from T to MSD and vice versa. In this case it is the task of the MSD to discriminate to and from which of both session gateway devices the packets are to be sent, resp. received.

[0028] While the principles of the invention have been described above in connection with specific apparatus, it is to be clearly understood that this description is made only by way of example and not as a limitation on the scope of the invention, as defined in the appended claims.

Claims

1. Method for setting up a session between a host (H) of a data network (IP) and a mobile terminal (T) of a mobile network (W) via a session gateway device (GW1) between said data network and said mobile network, said method including a first step of setting up a first session between said host (H) and said session gateway device (GW1) within said data network (IP), followed by a second step of setting up a second session between said session gateway device (GW1) and said mobile terminal (T),
   characterized in that
   said first session includes a first subsession being set up between said host (H) and a mobility server device (MSD) included in said data network (IP), and a second subsession being set up between said mobility server device (MSD) and said session gateway device (GW1).

2. Method according to claim 1,
   characterized in that
   said second step of setting up said second session is followed by a step of communicating, by said session gateway device (GW1), of an identifier of said mobile terminal (T), to all neighbouring session gateway devices (GW2) of said session gateway device (GW1).

3. Method according to claim 1

   characterized in that
   said second step of setting up said second session is followed by a step of communicating, by said session gateway device (GW1), of an identifier of said session, to all neighbouring session gateway devices of said session gateway device (GW1).

4. Method according to claim 2
   characterized in that
   in case a neighbouring session gateway device (GW2) of said neighbouring session gateway devices detects said mobile terminal (T) within its service area (2), said neighbouring session gateway device (GW2) sets up a third subsession within said data network to said mobility server device (MSD), and said neighbouring session gateway device (GW2) sets up another session within said mobile network with said mobile terminal (T).

5. Method according to claim 1
   characterized in that
   upon detection, by said session gateway device (GW1), that the quality of said second session between said session gateway device (GW1) and said mobile terminal (T) is no longer of a predetermined quality level, said session gateway device (GW1) terminates said second session with said mobile terminal.

6. Method according to claim 5
   characterized in that
   said session gateway device (GW1) further terminates said second subsession with said mobility server device (MSD).

7. Mobility server device (MSD) of a data network (IP), said mobility server device being adapted to receive from a host (H) of said data network (IP), messages of a session establishment protocol within said data network (IP), said mobility server device (MSD) being further adapted to generate returning messages of said session establishment protocol, thereby participating at setting up a first session to said host (H), said mobility server device (MSD) further being adapted to determine from said messages a session gateway device (GW1) to a mobile network (W) and to set up a further session to said session gateway device (GW1).

8. Mobility server device (MSD) according to claim 7
   characterised in that
   said mobility server device is further adapted to link said first session and said further session.

9. Mobility server device (MSD) according to claim 7
   characterised in that
   said mobility server device (MSD) is further adapted to route data packets from said host (H) to

said session gateway device (GW1) upon establish-
ment of said first session and of said further ses-
sion.

10. Mobility server device (MSD) according to claim 7   *5*
    characterised in that
    said mobility server device (MSD) is further
    adapted to route data packets from said session
    gateway device to said host, upon establishment of
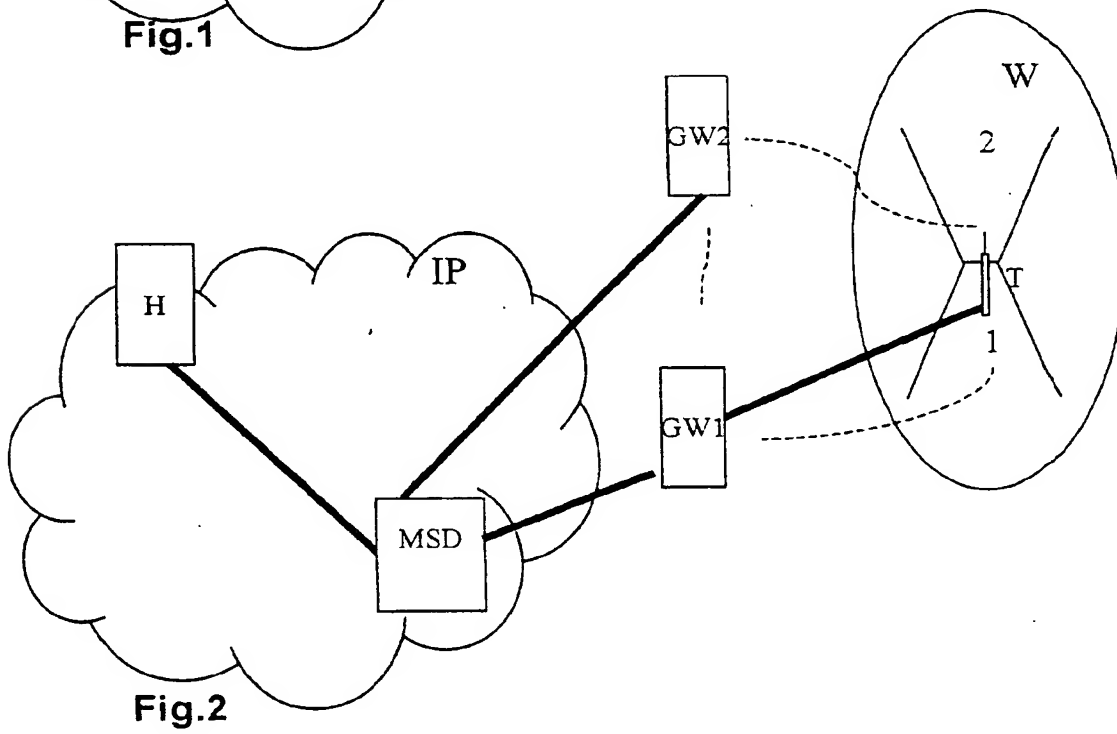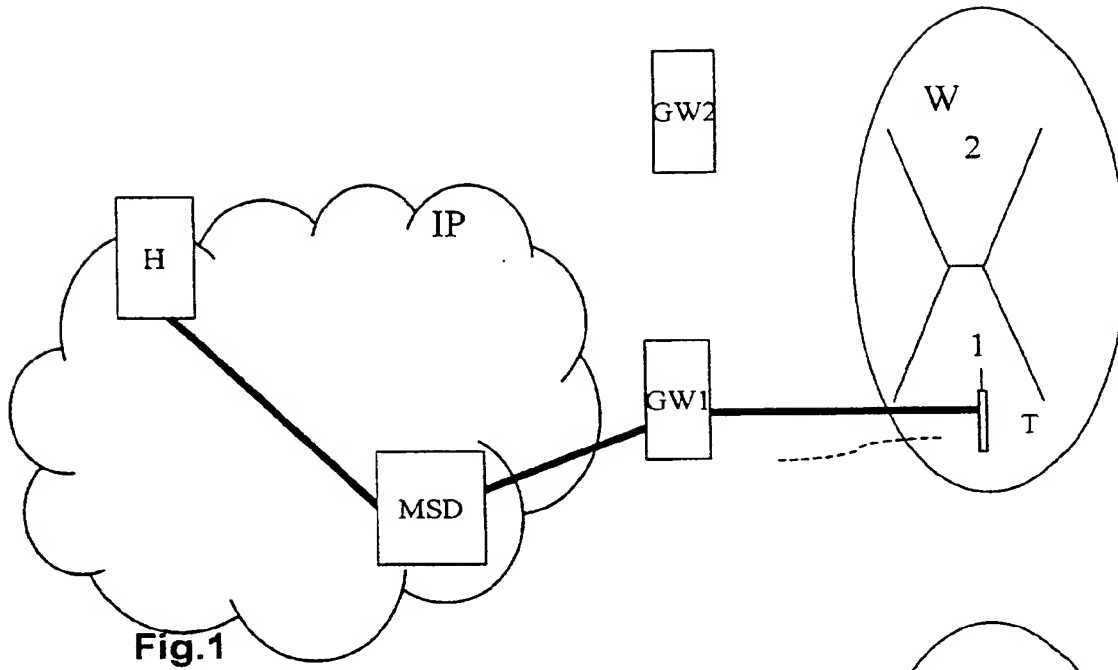   said first session and of said further session.   *10*

15

20

25

30

35

40

45

50
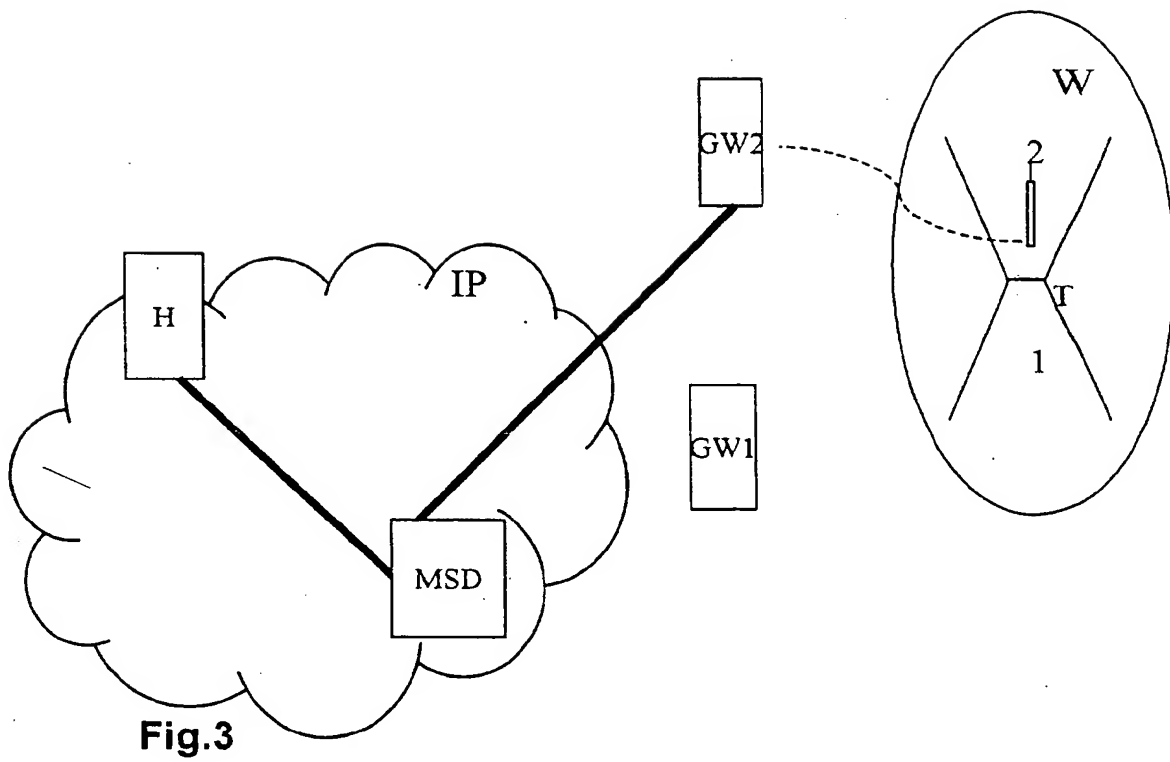
55

Fig.1

Fig.2

6

Fig.3

European Patent Office

EUROPEAN SEARCH REPORT

Application Number

EP 00 40 1135

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
Y	WO 98 57508 A (TELIA AB) 17 December 1998 (1998-12-17)	1,7	H04Q7/24 H04L29/06
A	* page 5, line 1 - line 16 *	2-6,8-10	

Y	LI Y ET AL: "PROTOCOL ARCHITECTURE FOR UNIVERSAL PERSONAL COMPUTING" IEEE JOURNAL ON SELECTED AREAS IN COMMUNICATIONS,US,IEEE INC. NEW YORK, vol. 15, no. 8, 1 October 1997 (1997-10-01), pages 1467-1476, XP000721278 ISSN: 0733-8716	1,7	
A	* page 1470, left-hand column, line 10 - right-hand column, line 42 * * page 1472, left-hand column, line 28 - right-hand column, line 15 *	2-6,8-10	

A	BAKRE A ET AL: "HANDOFF AND SYSTEM SUPPORT FOR INDIRECT TCP/IP" PROCEEDINGS OF THE USENIX MOBILE AND LOCATION-INDEPENDENT COMPUTING SYMPOSIUM,XX,XX, 10 April 1995 (1995-04-10), pages 11-24, XP000764772 * page 12, line 4 - page 13, line 2 *	1,2,4,7	TECHNICAL FIELDS SEARCHED (Int.Cl.7) H04Q H04L

A	WO 99 56445 A (HUBBARD ELISABETH ;TELIA AB PUBL (SE)) 4 November 1999 (1999-11-04) * page 12, line 8 - line 29 *	1,7	

A	US 5 912 878 A (PARK SUNG-WOO ET AL) 15 June 1999 (1999-06-15) * column 3, line 25 - line 40 * * column 4, line 1 - line 12 * * colum 5, line 9 - line 20 *	1,7	

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
BERLIN	11 September 2000	Bernedo Azpiri, P

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
Y : particularly relevant if combined with another document of the same category
A : technological background
O : non-written disclosure
P : intermediate document

T : theory or principle underlying the invention
E : earlier patent document, but published on, or after the filing date
D : document cited in the application
L : document cited for other reasons

& : member of the same patent family, corresponding document

EPO FORM 1503 03 82 (P04C01)

ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.

EP 00 40 1135

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information

11-09-2000

Patent document cited in search report		Publication date	Patent family member(s)		Publication date
WO 9857508	A	17-12-1998	EP NO SE	0990353 A 996063 A 9702266 A	05-04-2000 10-02-2000 14-12-1998
WO 9956445	A	04-11-1999	SE	9802666 A	29-10-1999
US 5912878	A	15-06-1999	EP WO	0963660 A 9838808 A	15-12-1999 03-09-1998

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82